

IN THE CLAIMS:

1. (Original): A system for alerting a flight crew of an aircraft of a potentially hazardous condition, the system comprising:

a processor configured to predict specific energy of an aircraft at a touchdown zone of a runway;

a comparator configured to compare the predicted specific energy with predetermined threshold specific energy; and

an alert generator configured to generate an alert when the predicted specific energy is at least the predetermined threshold specific energy.

2. (Original): The system of Claim 1, wherein the specific energy includes at least one of specific potential energy, specific kinetic energy, and specific total energy.

3. (Original): The system of Claim 1, wherein the predetermined threshold specific energy varies approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

4. (Original): The system of Claim 2, wherein the alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

5. (Original): The system of Claim 2, wherein the alert includes a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

6. (Original): The system of Claim 2, wherein the alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft

speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

7. (Original): The system of Claim 1, wherein the alert includes an aural alert.
8. (Original): The system of Claim 1, wherein the alert includes a visual alert.
9. (Original): The system of Claim 1, wherein the processor is further configured to begin predicting the specific energy when the aircraft is at a predetermined distance from the touchdown zone of the runway.
10. (Original): The system of Claim 9, wherein the predetermined distance is less than around five miles.
11. (Original): A method for alerting a flight crew of an aircraft of a potentially hazardous condition, the method comprising:
 - predicting specific energy of an aircraft at a touchdown zone of a runway;
 - comparing the predicted specific energy with predetermined threshold specific energy; and
 - generating an alert when the predicted specific energy is at least the predetermined threshold specific energy.
12. (Original): The method of Claim 11, wherein the specific energy includes at least one of specific potential energy, specific kinetic energy, and specific total energy.
13. (Original): The method of Claim 11, wherein the predetermined threshold specific energy varies approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

14. (Original): The method of Claim 12, wherein generating the alert includes generating a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

15. (Original): The method of Claim 12, wherein generating the alert includes generating a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

16. (Original): The method of Claim 12, wherein generating the alert includes generating a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

17. (Original): The method of Claim 11, wherein the alert includes an aural alert.

18. (Original): The method of Claim 11, wherein the alert includes a visual alert.

19. (Original): The method of Claim 11, wherein predicting the specific energy begins when the aircraft is at a predetermined distance from the touchdown zone of the runway.

20. (Original): The method of Claim 19, wherein the predetermined distance is less than around five miles.

21. (Original): A computer program product for alerting a flight crew of an aircraft of a potentially hazardous condition, the computer program product comprising:

first computer software program code means for predicting specific energy of an aircraft at a touchdown zone of a runway;

second computer software program code means for comparing the predicted specific energy with predetermined threshold specific energy; and

third computer software program code means for generating an alert when the predicted specific energy is at least the predetermined threshold specific energy.

22. (Original): The computer program product of Claim 21, wherein the specific energy includes at least one of specific potential energy, specific kinetic energy, and specific total energy.

23. (Original): The computer program product of Claim 21, wherein the predetermined threshold specific energy varies approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

24. (Original): The computer program product of Claim 22, wherein the third computer software program code means generates a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

25. (Original): The computer program product of Claim 22, wherein the third computer software program code means generates a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

26. (Original): The computer program product of Claim 22, wherein the third computer software program code means generates a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

27. (Original): The computer program product of Claim 21, wherein the alert includes an aural alert.

28. (Original): The computer program product of Claim 21, wherein the alert includes a visual alert.

29. (Original): The computer program product of Claim 21, wherein the first computer software program code means begins predicting the specific energy when the aircraft is at a predetermined distance from the touchdown zone of the runway.

30. (Original): The computer program product of Claim 29, wherein the predetermined distance is less than around five miles.

31. (Original): A system for alerting a flight crew of an aircraft of a potentially hazardous condition, the system comprising:

a processor including:

a first component configured to predict specific potential energy of an aircraft at a touchdown zone of a runway;

a second component configured to predict specific kinetic energy of the aircraft at the touchdown zone of the runway; and

a third component configured to predict specific total energy of the aircraft at the touchdown zone of the runway;

a comparator configured to compare the predicted specific potential energy with predetermined threshold specific potential energy, the comparator being further configured to compare the predicted specific kinetic energy with predetermined threshold specific kinetic energy, the comparator being further configured to compare the predicted specific total energy with predetermined threshold specific total energy; and

an alert generator configured to generate a first alert when the predicted specific potential energy is at least the predetermined threshold specific potential energy, the alert generator being further configured to generate a second alert when the predicted specific potential energy is at least the predetermined threshold specific kinetic energy, the alert generator being further configured to generate a third alert when the predicted specific total energy is at least the predetermined threshold specific total energy.

32. (Original): The system of Claim 31, wherein the predetermined threshold specific potential energy and the predetermined threshold specific kinetic energy and the predetermined threshold specific total energy vary approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

33. (Original): The system of Claim 31, wherein the first alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

34. (Original): The system of Claim 31, wherein the second alert includes a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

35. (Original): The system of Claim 31, wherein the third alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

36. (Original): The system of Claim 31, wherein the processor is configured to begin predicting the specific potential energy and the specific kinetic energy and the specific total energy when the aircraft is at a predetermined distance from the touchdown zone of the runway.

37. (Original): The system of Claim 36, wherein the predetermined distance is less than around five miles.

38. (Original): The system of Claim 31, wherein the first component is configured to predict the specific potential energy responsive to height of the aircraft above the touchdown zone.

39. (Original): The system of Claim 31, wherein the second component is configured to predict the specific kinetic energy responsive to square of ground speed of the aircraft.

40. (Original): A method for alerting a flight crew of an aircraft of a potentially hazardous condition, the method comprising:

predicting specific potential energy of an aircraft at a touchdown zone of a runway;

predicting specific kinetic energy of the aircraft at the touchdown zone of the runway;

predicting specific total energy of the aircraft at the touchdown zone of the runway;

comparing the predicted specific potential energy with predetermined threshold specific potential energy;

comparing the predicted specific kinetic energy with predetermined threshold specific kinetic energy;

comparing the predicted specific total energy with predetermined threshold specific total energy;

generating a first alert when the predicted specific potential energy is at least the predetermined threshold specific potential energy;

generating a second alert when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy; and
generating a third alert when the predicted specific total energy is at least the predetermined threshold specific total energy.

41. (Original): The method of Claim 40, wherein the predetermined threshold specific potential energy and the predetermined threshold specific kinetic energy and the predetermined threshold specific total energy vary approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

42. (Original): The method of Claim 40, wherein the first alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

43. (Original): The method of Claim 40, wherein the second alert includes a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

44. (Original): The method of Claim 40, wherein the third alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

45. (Original): The method of Claim 40, wherein predicting the specific potential energy and predicting the specific kinetic energy and predicting the specific total energy begin when the aircraft is at a predetermined distance from the touchdown zone of the runway.

46. (Original): The method of Claim 45, wherein the predetermined distance is less than around five miles.

47. (Original): The method of Claim 40, wherein the specific potential energy is predicted responsive to height of the aircraft above the touchdown zone.

48. (Original): The method of Claim 40, wherein the specific kinetic energy is predicted responsive to square of ground speed of the aircraft

49. (Original): A computer program product for alerting a flight crew of an aircraft of a potentially hazardous condition, the computer program product comprising:

first computer software program code means for predicting specific potential energy of an aircraft at a touchdown zone of a runway;

second computer software program code means for predicting specific kinetic energy of the aircraft at the touchdown zone of the runway;

third computer software program code means for predicting specific total energy of the aircraft at the touchdown zone of the runway;

fourth computer software program code means for comparing the predicted specific potential energy with predetermined threshold specific potential energy;

fifth computer software program code means for comparing the predicted specific kinetic energy with predetermined threshold specific kinetic energy;

sixth computer software program code means for comparing the predicted specific total energy with predetermined threshold specific total energy;

seventh computer software program code means for generating a first alert when the predicted specific potential energy is at least the predetermined threshold specific potential energy;

eighth computer software program code means for generating a second alert when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy; and

ninth computer software program code means for generating a third alert when the predicted specific total energy is at least the predetermined threshold specific total energy.

50. (Original): The computer program product of Claim 49, wherein the predetermined threshold specific potential energy and the predetermined threshold specific kinetic energy and the predetermined threshold specific total energy vary approximately proportionately with distance from the aircraft to the touchdown zone of the runway.

51. (Original): The computer program product of Claim 49, wherein the first alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope when the predicted specific potential energy is at least the predetermined threshold specific potential energy.

52. (Original): The computer program product of Claim 49, wherein the second alert includes a message that is indicative of an aircraft speed that is faster than a predetermined ground speed when the predicted specific kinetic energy is at least the predetermined threshold specific kinetic energy.

53. (Original): The computer program product of Claim 49, wherein the third alert includes a message that is indicative of an aircraft altitude that is higher than a predetermined glide slope and an aircraft speed that is faster than a predetermined ground speed when the predicted specific total energy is at least the predetermined threshold specific total energy.

54. (Original): The computer program product of Claim 49, wherein the first, second, and third computer software program code means begin predicting when the aircraft is at a predetermined distance from the touchdown zone of the runway.

55. (Original): The computer program product of Claim 54, wherein the predetermined distance is less than around five miles.

56. (Original): The computer program product of Claim 49, wherein the first computer software program code means predicts the specific potential energy responsive to height of the aircraft above the touchdown zone.

57. (Original): The computer program product of Claim 49, wherein the second computer software program code means predicts the specific kinetic energy responsive to square of ground speed of the aircraft.